

REMARKS/ARGUMENTS

Claims 1-4, 6-10, and 12-21 are pending in the application. Claims 5 and 11 have been cancelled without prejudice to the subject matter recited therein. Claim 21 is newly added, and is supported by the originally file application at, for example, claim 3. No new matter has been added.

Claims 10-11, 15, and 18-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cheng et al. (U.S. Patent No. 6,109,501). Claims 1, 3, 5-7, 10-14, 18, and 20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Okada et al. (U.S. Patent No. 6,126,432). Claims 2, 4, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada in view of Kinnaird (U.S. Patent No. 5,839,640). Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada in view of Koseki (U.S. Patent No. 6,122,307).

Claim 16 stands objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Claim 16 has been amended to be in independent form (with other minor changes for clarity), and as such, is in condition for allowance.

Applicants' acknowledge, with appreciation, the opportunity provided to Applicants' representatives (i.e., Christopher Spletzer and Gregory Burke) on May 25, 2005, to conduct a telephone interview with the Examiner in connection with the above-identified application. Prior to the telephone interview, Applicants representative faxed proposed amended claims to the Examiner for discussion during the interview. The claims have been further amended as agreed during the telephone interview.

During the interview, Applicants' representatives argued that Okada is drawn to an optical transmission line forming apparatus, and not a wire bonding machine. The Examiner agreed with Applicants' representatives, and as such, the rejection of the claims under Okada was withdrawn.

During the interview, Applicants' representatives argued that claim 1, as amended, is clearly distinguished from Cheng. For example, Applicants' representatives argued that Cheng does not disclose certain features recited in claim 1, for example:

[a] wire bonding machine . . . comprising . . . a wire bonding head supporting a bonding tool . . . the bonding head having at least a portion which is pivotable about a first horizontal axis, the bonding tool being supported by the pivotable portion so as to be vertically movable, the bonding head being rotatably mounted to a portion of the wire bonding machine so as to permit rotation of the bonding tool about a vertical axis . . . a work table . . . and a positioning system for positioning the work table in one direction relative to the bonding head during the wire bonding operation.

Thus, the wire bonding machine recited in claim 1 includes a wire bonding head supporting a bonding tool where the bonding tool is adapted to attach a wire end to a semiconductor device. The bonding head has at least a portion which is pivotable about a first horizontal axis, and the bonding tool is supported by the pivotable portion to be vertically movable. The bonding head is rotatably mounted to a portion of the wire bonding machine to permit rotation of the bonding tool about a vertical axis. The wire bonding machine also includes a work table for supporting at least one semiconductor device to be wire bonded, and a positioning system for positioning the work table in one direction relative to the bonding head during the wire bonding operation.

Cheng discloses providing vertical motion of the bonding head along the Z-axis through a linear slide system (See column 6, line 55 through column 7, line 45). In contrast, the wire bonding machine recited in claim 1 includes a bonding head having at least a portion which is pivotable about a first horizontal axis, where the bonding tool is supported by the pivotable portion so as to be vertically movable. Thus, in claim 1, motion of the bonding tool along the Z-axis is provided by the pivotal motion about the horizontal axis, and not by a linear slide system as in Cheng.

Further, Cheng does not disclose a positioning system for positioning the work table in one direction relative to the bonding head during the wire bonding operation, as recited in claim 1. As provided in the originally filed application of the present invention, "[o]ne difference

between the present invention and current systems is that the conveyance system 16 provides translation of the work table in one direction, e.g., the X-axis direction, for purposes of positioning the workpiece 20 and to provide the high speed bonding motion relative to the bonding tool 14.” (See originally filed application at page 6, paragraph 21). Thus, the positioning system recited in claim 1 is not merely a system for course motion of a device prior to, or after, the wire bonding operation. The positioning system is a system for positioning the work table (and hence the work piece) in a direction during the wire bonding operation. By providing motion of the work piece in the direction by the positioning system, the bond head (or bonding tool) is not required to provide positioning in the direction during wire bonding.

In sharp contrast, Cheng provides that “[b]ecause the wire bonder has the bonding head 302 perform all motions of the assembly process while the semiconductor device remains stationary, the space underneath may be utilized for transporting the device 110 after completion of the assembly process.” (emphasis added)

During the telephone interview it was agreed that, claim 1, as amended, overcomes the present rejection. Thus, absent any additional relevant references being located during any further search conducted by the Examiner, it is respectfully submitted that claim 1 is in condition for allowance.

During the interview it was also agreed that independent claims 3, 4, and 10, as amended, overcome the present rejection. Thus, absent any additional relevant references being located during any further search conducted by the Examiner, it is respectfully submitted that claims 3, 4, and 10 are in condition for allowance. Dependent claims 2, 6-9, 12-15, and 17-21 depend from one of independent claims 1, 4, and 10, either directly or indirectly. Therefore, claims 2-6, 11-18, 29-32, 37-44, and 48-49 are also in condition for allowance.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

The present application is believed to be in condition for allowance, and such action is respectfully requested. If direct communication will expedite the allowance of the application, the Examiner is invited to telephone the undersigned attorney for applicant.

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Respectfully submitted,

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